

# Motor drive with planetary gear

## NSP 30-04

### APPLICATION

The drive is designed to work with disconnectors, load break switches and earthing switches in medium voltage indoor conditions. The application of the drive allows for remote or local control of the switch installed in the cell of the switchgear. In a simple way, without any extra modifications to the existing switchgear, it is possible to replace the existing pneumatic or manual drives of the NR-1 type with NSP motor drive, introducing a new standard of control and safety (remote, local or manual control possibility).



### ADVANTAGES

- » simple construction, using proven mechanisms (2000 cycles)
- » high torque, which allows for easy manoeuvring the wide range of medium voltage switches
- » smooth adjustment of the output shaft rotation angle in the range of 220°
- » easy replacement of manual drive type NR1 on the NSP 30-04 without having to make changes to existing switchgear
- » in case of voltage failure, the possibility of manual operation

### TECHNICAL DATA

PARAMETER	VALUE
Type of the drive	NSP 30-04
Motor type	with permanent magnets
Rated voltage of the drive	24 / 110 / 220 V DC
Rated power	300 W
Motor's rated current	1,9 / 4,1 / 16 A
Drive shaft torque	180 Nm
Rated mechanical durability	2000 cycles
Weight	~ 9 kg

## EQUIPMENT

- » three-stage planetary gear driven by a DC motor on permanent magnets
- » limit switches switching off the motor power supply when the main shaft reaches the assumed rotation angle
- » terminal strip for connecting control circuits and power supply
- » limit switches of the electric lock to switch off the motor power supply during manual operation

## HOUSING

The housing is made of steel sheet covered with a layer of epoxy powder paint. It is fastened to the drive plate with two screws. At the bottom of the housing there is a straight-through joint that enables the supply of cables to the control system. The housing cover is connected with the 8 screws.

## THE DRIVE MECHANISM INCLUDES

- » DC motor with permanent magnets
- » three-degree planetary worm gear
- » intersecting axis rack gear, to transfer angular moment and the crank for manual opening
- » lever for manual opening

The electric motor drives the shaft through the planetary gear. The angle of rotation of the output shaft is limited by a limit switch up to 220°.

## ADJUSTING THE ANGLE OF ROTATION OF THE OUTPUT SHAFT

Adjusting the angle of rotation of the output shaft is performed by using limit switches mounted on the limit switch's plate. Loosening the screw M3 allows for smooth adjustment of the angle of the output shaft in the range of up to 220°.

## MANUAL CONTROL

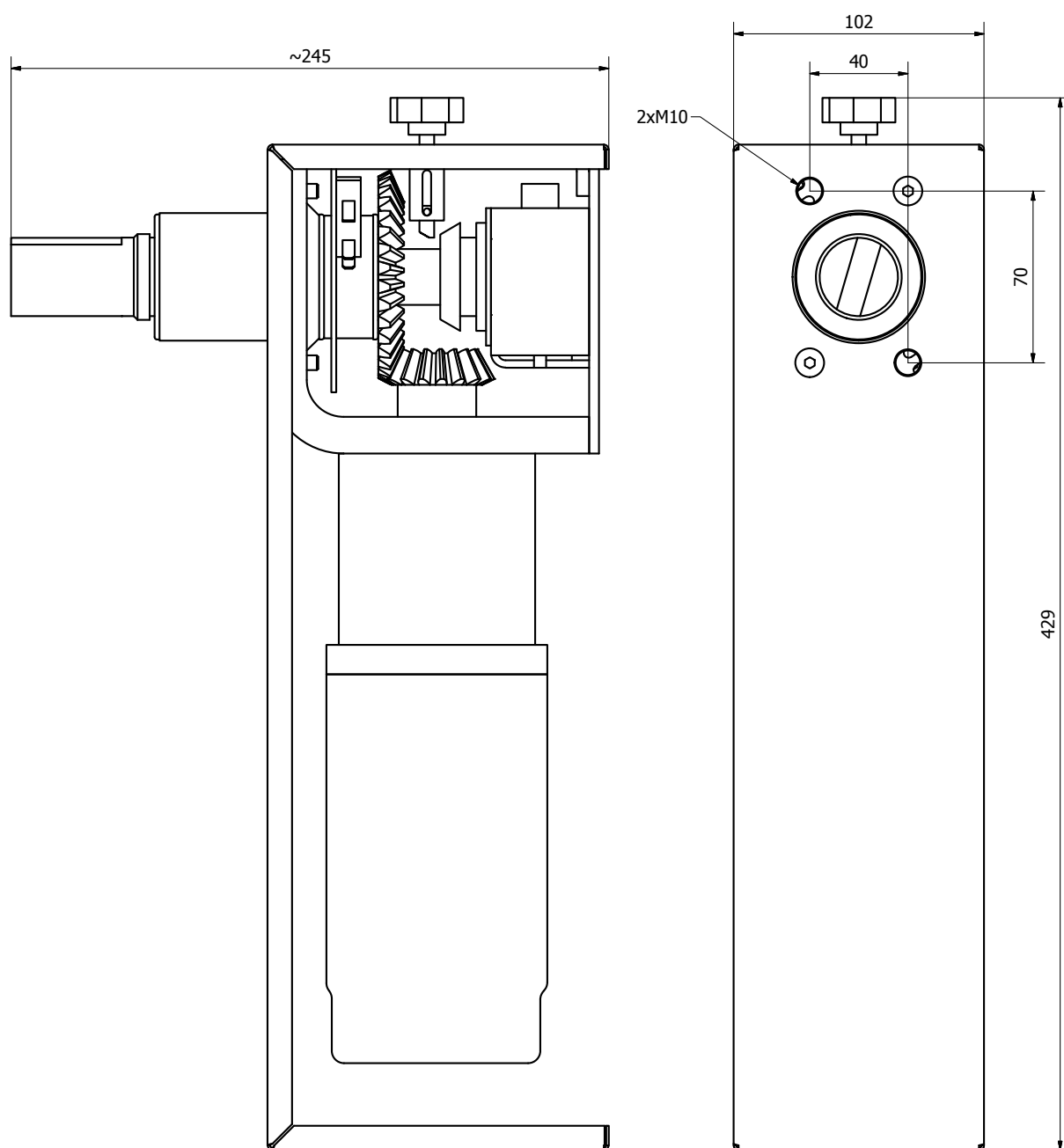
In order for manual operating the drive you need to:

- » insert the lever in the hole on the knurled shaft
- » rotate, causing the closure of the device (right), or open (left) depending on the current position of the switch
- » after pulling out the manoeuvring lever, unlock the rack using the handle located at the top of the drive to block manual manoeuvring, after which the electric motor unlocks to the electric manoeuvring version

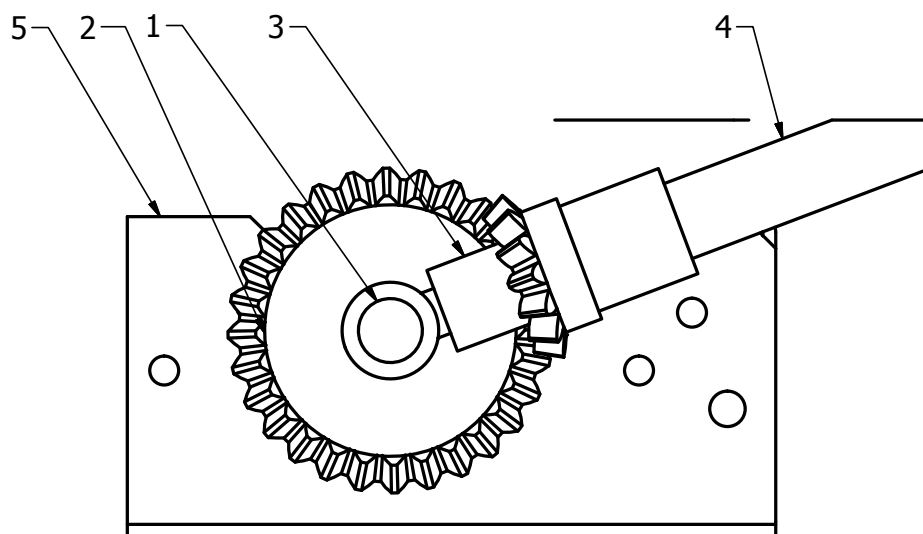
Once the manoeuvring lever is inserted, the drive has no possibility of electric manoeuvring.

### MOUNTING THE DRIVE TO THE SUPPORT STRUCTURE

Mounting the drive to the supporting structure is performed by using two M10 bolts. The wall on which the drive is mounted should be sufficiently rigid thus providing the driving torque transmission.

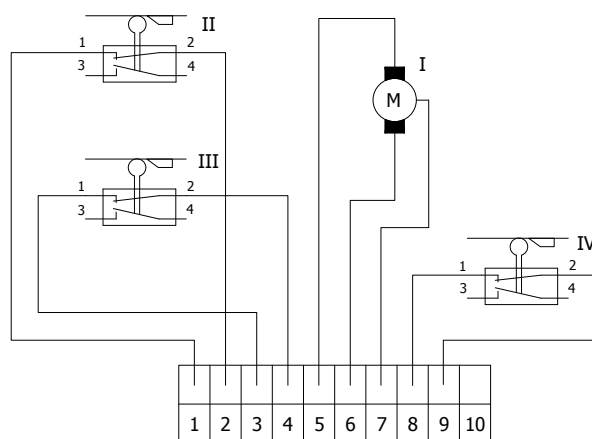


Dimensions of NSP 30-04



**Coupling on the side of the MV disconnector or earthing switch**

1	Shaft
2	Pinion (large toothed wheel)
3	Rack (small toothed wheel)
4	Tubular shaft
5	Basis



**Wiring diagram of NSP 30-04**

I	Motor
II	Closing limit switch
III	Opening limit switch
IV	Microswitch for electrical interlock